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ABSTRACT

This study provides some evidence of significant differences between the Redundancy and Bottom-to-Top Models in sequencing four-semester elementary and intermediate Spanish courses using the ACT Spanish Test Form 1 as the dependent variable. T-test results of independent samples (unequal variances model) were 0.056. Results also indicated that there were no significant differences in measures of interview tasks among second language subjects after the four-semester sequence in Spanish. The investigator found that both university sites adhered to American Council on the Teaching of Foreign Languages guidelines, therefore subjects scored similarly on the Oral Proficiency Interview (OPI). The study also found that at the end of the four-semester sequence, subjects scored Intermediate Mid (IM) on the OPI and confirmed previous research in French and German study using undergraduate subjects and high school students after 4 years of Spanish study. (Contains 19 references.) (KFT)

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THE BOTTOM-TO-TOP VERSUS THE REDUNDANCY MODELS: A COMPARISON OF TWO FOUR-SEMESTER SEQUENCES IN SPANISH

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The Bottom-to-Top versus the Redundancy Models:
A Comparison of Two Four-Semester Sequences in Spanish

An increasing number of states (e.g. California, Colorado, Connecticut, Florida, Georgia, Massachusetts, Minnesota, Oregon, Texas and Washington) have established examinations expressed in proficiency terms for admission, exit or certification. Consistent with this proficiency movement, the use of the ACTFL-ETS Oral Proficiency Interviews has emerged to measure communicative ability in a foreign language (Glisan and Folz 1998; Schulz 1988). The immediate forerunner of the Oral Proficiency Interview (OPI), the Foreign Service Institute (FSI) Oral Proficiency Interview has been used by the US government to assess proficiency in CIA, Peace Corps and American personnel stationed overseas. This 15- to 30-minute face-to-face conversation between the examinee and the interviewer has served the US government for over four decades (Clark and Clifford 1988; Halleck 1995). In wake of the proficiency movement, textbooks began the shift away from grammatical and reading competencies to real world situations, functional topics (using communication and transportation facilities, finding lodging, obtaining food, going shopping, amusements, health issues, cultural tips, etc.), listening comprehension, reading and writing. The grammatical system began to sequence from simple to complex, semester to semester, and tenses would progress from the present to the subjunctive and conditional moods. L2 learners controlled structures at their level of competence (Tschirner 1996). L2 learners progressed from simplistic utterances unlinked by coordination to more complex speech using coordination, subordination and embedded clauses. Reading, writing and listening skills progressed along this same model: simple to complex, isolated words to complex sentences, predictable needs to hypothesis testing and persuasive arguments. Reading and writing required descriptive tasks in elementary courses and narrative tasks in intermediate courses (Way, Joiner and Seaman 2000).

Within L2 programs, two major philosophies emerged. Hammerly (1991) referred to these models as holistic and cumulative mastery. Holistic models sequence the four semesters invariantly: instruction could not alter the order of stages learners went through (VanPatten 1992). Clahsen, Meisel and Pienemann (1983) discovered that second language acquisition resulted from a five-stage implicational scale in which later stages required prerequisite earlier stages or invariance: (1) canonical word order or SVO; (2) adverb preposing; (3) verb separation; (4) inversion; and (5) subordinate clauses. Although the original work was specific to German, their research validated five stages for Italian, Portuguese and Spanish. The holistic model also prescribed psychological readiness for learning: instructing learners at stage 3 when the learner was at stage 1 resulted in no learning. In terms of error correction, this model offered L2 learners a freer environment, an environment in which one learns by doing or acting upon the environmental flux (Piaget 1985). Errors would disappear within natural communication conditions.

The cumulative mastery model was based upon bottom-to-top, step by step approaches in which learning of component A was learned and followed by controlled communication, then component B was learned and followed by controlled communication involving components A and B. Cumulative mastery models assumed that errors had negative effects on language acquisition and L2 learners needed corrective feedback (Hammerly 1991).

Holistic and cumulative models did permit functional topics in elementary and intermediate courses. Situational syllabi with contextualized and enabling grammar prevailed. Reading and writing activities with a new emphasis on cultural information emerged to meet the new demands of the millennium.

Within the dichotomy created by the two models, other problems with the four semester sequence (elementary and intermediate Spanish) developed within the oral proficiency movement. What level was attained after four semesters of language

study? Liskin-Gasparro (1982) reported that Foreign Service Institute trainees for diplomatic positions ranged from the Intermediate Low (IL) to Intermediate (IH) levels upon completing 240 hours of Spanish. Glisan and Foltz (1998) pointed out that highly motivated adults studying within the FSI differed significantly from students within L2 classrooms. Investigations examining length of study and Oral Proficiency Interview scores using secondary or university students have found close analogies to FSI scores. Magnan (1986) discovered that upon completion of the intermediate course in French, undergraduate subjects attained the score of Intermediate Mid (IM). A study of 56 college students of Russian at the University of Iowa and at Middlebury College found a range of scores from Novice High (NH) to Intermediate Low (IL) (Thompson 1996). Tschirner's investigation in 1993 reported that his college German subjects attained a median score of Intermediate Mid (IM). Huebner and Jensen (1992) concluded that secondary Spanish students reached the Intermediate Mid (IM) after four years of study. Therefore, in French, German and Spanish (Magnan, 1986; Tschirner 1993) Intermediate Mid (IM) scores resulted from two years (elementary and intermediate) of instruction and represented a reasonable and attainable goal in oral proficiency. Tschirner and Heilenman (1998) indicated that the range of scores within a course was due to the lack of homogeneity among students: previous research indicated that students might range from Intermediate Low (IL) to Advanced (A) after two years or four semesters of study. Glisan and Foltz (1998) questioned the reliability of previous research by stating that the investigations were confounded by the fact that many of the students were not true beginners. Student variables such as study abroad, proficiency in other languages, teacher talk, block scheduling, computer assisted instruction, motivation and OPI interrater reliability might explain the range of scores; however, the Intermediate Mid (IM) accounts for more research support after four semesters of undergraduate study in French, German and Spanish (Tschirner and Heilenman, 1998).

Hector Hammerly (1991) and Erwin Tschirner (1996) questioned the traditional four-semester sequence. Hammerly (1991) insisted that college or university language programs attempted to cover the entire grammatical system in one year and reviewed morphology and syntax in the second year with a more sophisticated lexicon. This one shot cumulative mastery model might be too rapid to ensure mastery. Tschirner (1996) posited that first-year courses were under enormous pressure to provide more under limited time constraints. Speaking, listening, reading, writing, cultural studies and grammar crowded the syllabus of the elementary language course. Tschirner (1996) reiterated that the same kind of grammar and explanations did not underlie each of the modern language skills. Spoken and written language required different grammatical activities. Listening comprehension demanded a grammar based upon redundancies, knowledge of scenarios, linguistic and situational contexts, and restatements (Berne, 1995; Tschirner 1996). Kirtley and Honeycutt (1996) examined the correspondence between four listening styles and second guessing theory. Multiple regression analysis yielded two listening styles as significant predictors of second guessing: content and action-oriented listening styles. Content-oriented listeners evaluated details and facts before decisions; action-oriented listeners preferred organized, concise and error-free messages. This investigation clearly suggested that possible links between personality, listening styles and second guessing might be a new avenue for research into the learner's listening process. What did the L2 learner perceive, interpret, evaluate and respond to during the listening stages? What grammatical adaptations might be accommodated during these stages?
At any rate, Tschirner (1996) argued that L2 learners could be introduced to controllable grammar structures, and some of the structures at the next higher level. Only attainable goals might be considered. He maintained that most learners did not move out of the

Intermediate Mid (IM) level until the fifth through eighth semesters. L2 learners would not need detailed and extensive grammatical training during elementary and intermediate courses. Since textbooks had not changed for decades in light of contemporary research, Tschirner rejected the assumption that a complete introduction to the grammatical system in first-year courses and a review in second-year courses were illogical.

Limited empirical research exists on the relationship between the two models of the four-semester sequence. Which model maximizes learning: The Bottom-to-Top Model which divides the grammatical system into four semesters or the Redundancy Model which presents the entire grammatical system in the elementary course and reviews the system in the intermediate course? No clear and satisfactory research has investigated the hypotheses:

H1: There are no significant differences in the ACT Spanish Test Scores among students taught by the Redundancy or the Bottom-to-Top Models after four semesters of university Spanish.

H2: There are no significant differences in measures of interview tasks among students on the Oral Proficiency Interview after being taught by the Redundancy or the Bottom-to-Top Models after four semesters of university Spanish.

METHOD

The design of the study involved two t-tests for independent samples: one t-test to compare the two models, Redundancy and Bottom-to-Top using the ACT Spanish Test Form I as the dependent variable; and one t-test to compare the two models, Redundancy and Bottom-to-Top using the OPI (Oral Proficiency Interview) as the dependent variable.

Subjects

Subjects (N = 40) were selected at random from the entire population of students (N = 142) completing the fourth-semester Spanish course or its equivalent at two sites: one state-supported university and one private university in the South. The following conditions prevailed at both universities: (1) placement examinations determined course selection for high school students entering third or fourth-semester courses and higher; (2) native speakers must be interviewed by instructional staff before entering an intermediate course; (3) 57 % of the subjects were female; (4) 75% of the subjects were liberal arts and education majors; (5) 25% of the subjects were business, science and engineering technology majors; (6) no subject was familiar with the OPI; (7) no subject was familiar with the ACT Spanish Examination, Form 1; (7) one subject had been to a Spanish-speaking for two weeks on a high school trip; (8) all subjects were native speakers of English and spoke only English with friends and relatives; and (9) all instructors for subjects were full-time professors of Spanish holding the doctorate, with an average of ten years experience.

All subjects were informed by letter of the nature of this investigation and were informed that their grades would not be affected by this study, and that there was no penalty if they chose not to participate. All subjects were informed that the results of this study would remain confidential. **All data were to be collected during the last four meetings of the fourth-semester course.**

OPI Certified Testers

Three OPI certified testers were employed in this investigation. All OPIs were recorded using a cassette player while one tester interviewed subjects and assigned ratings. The cassette tape was given to the second tester who assigned a blind second rating to subjects: the second tester did not see the ratings of the first tester. If there were disagreements among the two raters, a third OPI tester blindly rated the subjects. Final ratings were determined by agreements between two testers. This procedure ensured interrater reliability of the OPI. All OPI certified raters were from Midwestern universities and were employed by the investigator for this study.

Procedure

The ACT Spanish Examination (Form1) was administered during the last week before final examinations in fourth-semester Spanish to subjects (N = 20). This examination, originally a placement examination developed by American College Testing and the University of Illinois at Urbana-Champaign, was used by the University of Illinois to determine proficiency credit for Spanish courses (intermediate and beyond). The present form (1993) assessed reading comprehension (global comprehension, comprehension of relevant detail and inferences), grammatical knowledge (cloze passages and multiple choice), vocabulary (multiple choice), sociocultural knowledge and discourse competence (drawing information from a variety of text types such as magazines, articles, tables and travel brochures). Kuder-Richardson formula (KR-20), an estimate of test reliability = 0.9. Total number of items = 70. Test administration time = 75 minutes.

The ACTFL/ETS Oral Proficiency Interview (OPI) was administered during the last week before final examinations in fourth-semester Spanish to subjects (N = 20). The OPI interviews were administered individually to each subject and recorded as per protocol. The first tester handed the recordings to the second tester who rated subjects blindly or anonymously. The third tester resolved all disagreements: two out of three exact ratings on a subject would prevail.

Data Analysis

Means for two treatment groups (Redundancy and Bottom-to-Top Models) were 47.0 and 41.2, respectively using the ACT Spanish Test Form I. Standard deviations for two treatment groups were 7.333 and 5.051, respectively. Levene's Test for Equality of Variances indicated a significant difference ($F = 1.816$, $p < .195$), thus the treatment groups exhibited unequal variances. The investigator used both the equal and unequal

t-tests of independent samples.

T-test for Equality of Means (Redundancy and Bottom-to-Top Models)

Variance	t-value	df	Significance Level	SE of Difference	CV
Equal	2.06	18	.054	2.816	2.101
Unequal	2.06	15.97	.056	2.816	2.120

Since the observed value of the test statistic, the t-test of independent samples, did not exceed the critical value at the .05 level of significance, the two models do not differ significantly. The critical value (CV) of the equal and unequal variance t-tests were 2.101 and 2.120, respectively.

The investigator used the numerical conversion system (Dandonoli and Henning, 1990, p. 13) to represent ACTFL proficiency ratings in data entry:

1.1 = Intermediate Low
1.3 = Intermediate Mid
1.8 = Intermediate High
2.3 = Advanced

Means for two treatment groups (Redundancy and Bottom-to-Top Models) were 1.51 and 1.45, respectively. Standard deviations were .393 and .438, respectively. Levene's Test for Equality of Variance indicated unequal variances, $F = .365$, $p < .553$.

T-tests for Equality of Means (Redundancy and Bottom-to-Top Models)

Variances	T-value	df	Significance Level	SE of Difference	CV
Equal	.32	18	.751	.186	2.101
Unequal	.32	17.79	.751	.186	2.105

The second null hypothesis was tested against the directional alternative at the .05 level of significance. The critical value of the equal and unequal variance t-test were 2.101 and 2.105, respectively. Since .32 did not exceed the critical value, the hypothesis was retained: there were no significant differences in measures of interview tasks among students on the Oral Proficiency Interview after being taught by the Redundancy or the Bottom-to-Top Models after four semesters of university Spanish.

DISCUSSION

This investigation focused upon the fact that two models existed within the four-semester sequence: Redundancy and Bottom-to-Top Models. The Redundancy Model employed elementary and intermediate phases lasting two semesters each. This model utilized a sequential grammatical syllabus for the introductory course and repeated this syllabus with more complex morphological and syntactic structures in the intermediate course. Introductory

Spanish lexicon focused upon concrete words and simple functions; whereas, the intermediate course phased in more abstract words, longer dialog, literary and/or non-literary readings, and more complex listening exercises. Binary structures, such as preterite/imperfect, por and para, ser and estar, present indicative and present subjunctive appeared on both introductory and intermediate syllabi. On the other hand, the Bottom-to-Top Model divided the grammatical syllabus into four parts and permitted a sequencing from present to past to future/conditional to imperfect subjunctive, indicative to subjunctive, short to longer utterances, and simple to complex sentences. Binary structures introduced as individual topics appeared once between semester one and semester four.

The results of this investigation found no significant differences between the Redundancy and Bottom-to-Top Models at the .05 level of significance when the ACT Spanish Test Form 1 was used as the dependent variable. However, it must be noted that the t-test for equality of means was significant at the .056 level (unequal variance model). Furthermore, Levene's test for equality of variances failed; therefore, this investigation warranted a look at the dispersion of scores in both distributions. Subjects under the Redundancy Model produced the highest scores (60, 55, 50), whereas, the highest score for Bottom-to-Top subjects was 49; the mode for both treatment groups was 40. The Bottom-to-Top Model had seven scores in the forties. Therefore, one measure of central tendency (the mode) and two measures of dispersion or variability (variance and standard deviation) contributed to the almost significant differences between the two treatment groups. Future research might increase sample size in order to reduce sample deviations and make statistical differences more detectable without compromising Type I error. It is also interesting to note that the Redundancy Model yielded the highest scores on the ACT Spanish Test Form 1. These high scores might be due to overt remediation of discrete grammatical points in intermediate courses and more intensive reading (non-literary). Seeing that the ACT Spanish Test Form 1 was a global knowledge or integrative test, subjects most likely to be able to pull together many aspects of Spanish morphology and read well, would be more successful. The Redundancy Model might have provided the time frame, the repetition and the error corrections necessary to achieve higher scores. Also, confounding variables, such as intelligence and university classification (freshman, sophomore, junior and senior) might have contributed to higher scores. These confounding variables were not controlled in this investigation and might be foci of further research.

The second investigation explored the relationship between interview tasks on the OPI (Oral Proficiency Interview) and the Redundancy and Bottom-to-Top Models. According to this hypothesis, there were no significant differences between the ratings of the subjects taught by the two models after the four-semester sequence. The t-test of independent samples indicated no significant differences (See Appendix B for frequencies and mode). Seeing that accountability and oral proficiency were organizing principles of L2 classrooms at the two university sites and that ACTFL guidelines were reflected within syllabi, the results of this investigation were not surprising. Intermediate Mid (IM) scores were goals after four semesters of Spanish: vocabulary specific to personal history and leisure-time activities, some grammatical accuracy in noun-adjective agreement, subject-verb agreement and inflections (James, 1985). Both groups had similar average ratings after the OPI.

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SUMMARY

In conclusion, this study provides some evidence of significant differences between the Redundancy and Bottom-to-Top Models in sequencing four-semester elementary and intermediate Spanish courses using the ACT Spanish Test Form 1 as the dependent variable. The t-test of independent samples (unequal variances model) reached significance at the .056 level. Results also indicated that there were no significant differences in measures of interview tasks (OPI) among L2 subjects after the four-semester sequence in Spanish. The investigator found that both university sites adhered to ACTFL guidelines, therefore subjects scored similarly on the OPI. This study also found that at the end of the four-semester sequence, subjects scored Intermediate Mid (IM) on the OPI and confirmed previous research in French and German (Magnan, 1986; Tischirner, 1993) using undergraduate subjects and Huebner and Jensen (1992) utilizing secondary school subjects after four years of Spanish study.

RECOMMENDATIONS FOR FURTHER RESEARCH

1. A study of measures of interview tasks (OPI) using subjects at the advanced and superior proficiency levels. Dependent variables could be: (1) Narration in present; (2) Narration in past; (3) Description of a process; (4) Discussing advantages and disadvantages; (5) Abstract language; (6) Hypothesizing; and (7) Persuasive argumentation.

2. A study of measures of interview tasks (OPI) using subjects at the superior proficiency level (OPI) and levels 4 and 5 (Interagency Language Roundtable). What does professional proficiency mean and when is it attained?

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APPENDIX A

3.5
3.0
2.5
2.0
1.5
1.0
.5
Count
38.00
40.00
48.00
49.00
50.00
55.00
60.00
REDUNDAN

3.5
3.0
2.5
2.0
1.5
1.0
.5
Count
35.00
37.00
40.00
42.00
46.00
48.00
49.00
BOTTOP

APPENDIX B

4.5
4.0
3.5
3.0
2.5
2.0
1.5
Count
Missing
1.10
1.30
1.80
2.30
REDUN

6
5
4
3
2
1
0
Count
Missing
1.10
1.30
1.80
2.30
BOTTOP